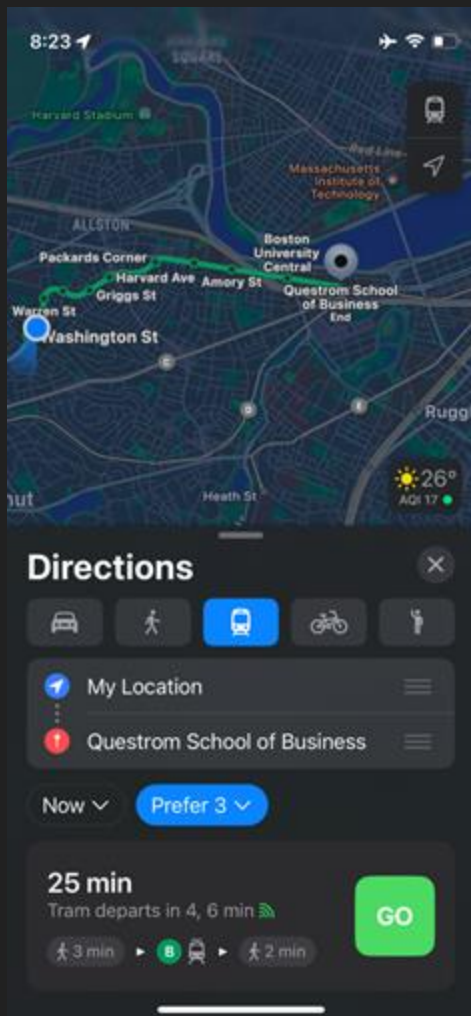
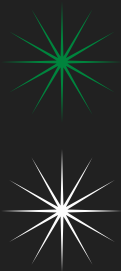




HEADWAY: Analyzing Consistency on the MBTA





PURPOSE



Increasing Reliability

By making the MBTA's service more consistent, they can potentially increase ridership.



Increase Revenue

By improving ridership, the MBTA can bring in more revenue.



Minimize Cost

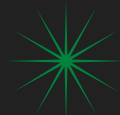
The MBTA is estimated to have a budget deficit of \$700 million by 2026. Any recommendations should strongly consider cost.



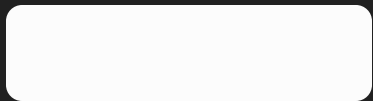
OUR DATA



The MBTA offers select datasets that they record publicly. We investigated their gated station entry data and headway data.



HEADWAY



Headway is the amount of time or distance between two trains.



Train 1



Amory Street

Headway



Train 2 left
Amory Street 5
minutes ago.

Train 2



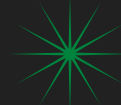
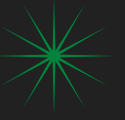
So, Train 1 has 5
minutes of
headway.





A OVERVIEW OF MBTA CONSISTENCY

[https://public.tableau.com/app/profile/barrett.ratzla
ff/viz/MBTAHeadwayDashboard/EDADashboard?p
ublish=yes](https://public.tableau.com/app/profile/barrett.ratzlaff/viz/MBTAHeadwayDashboard/EDADashboard?publish=yes)





PEOPLE NEED THE T

We found very little correlation between slower headway and station entries. People still rely on the MBTA's service, despite it not being 100% reliable.



VARIABILITY

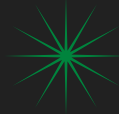


Looking at the
headway per stop only
gives a snapshot of
Green-B Line Service.

Washington Street
Headway: 5 minutes

Warren Street
Headway: 7 minutes

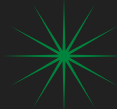
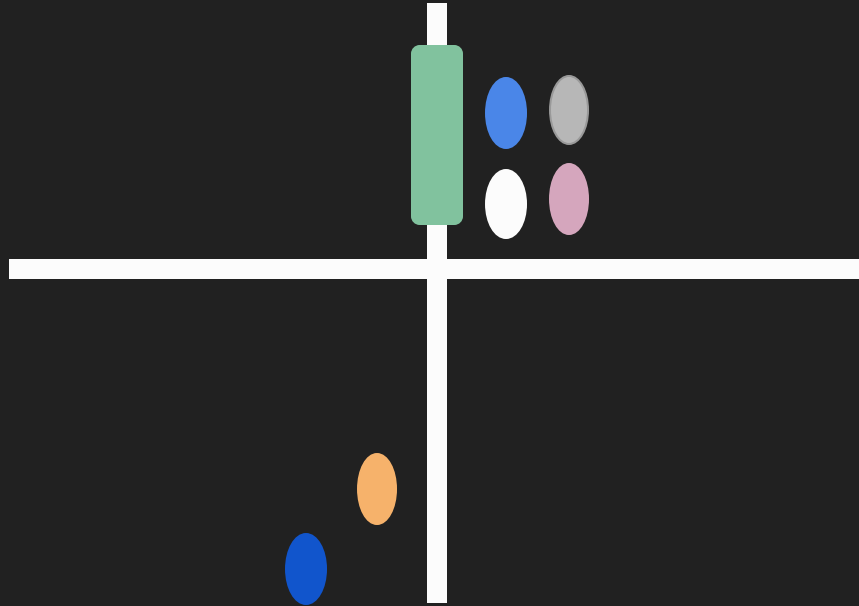
The headway
changed by +2
minutes between
stations. Why?



NORMAL INTERSECTIONS



There are two different flows of traffic, and one is parallel with the trolley.





ABNORMAL INTERSECTIONS

Because the flow of traffic is complex at certain stations, some stops may experience a greater degree of randomness in headway.



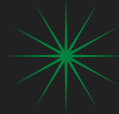
ABNORMAL INTERSECTIONS



	stop_name	direction	peak_inconsistent_prct
0	Warren Street	East	23.38
1	Warren Street	West	23.31

At Warren Street, trains have a 15-20 second window to cross the street, with 90 seconds of wait time before the next window.

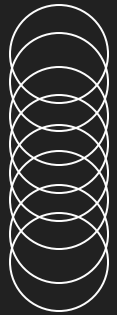
They also must go independently from other flows of traffic.





GREEN-B LINE CONSISTENCY

[https://public.tableau.com/app/profile/
barrett.ratzlaff/viz/Green-
BLineConsistencyDashboard/Consisten
cyofGreenBLineServicein2024](https://public.tableau.com/app/profile/barrett.ratzlaff/viz/Green-BLineConsistencyDashboard/ConsistencyofGreenBLineServicein2024)



Recommendations



Train Signal Priority (TSP)



Door operation



Gate Machine Establishment



Monthly Membership Promotion





Thank you!

